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DISCOVERY OF CORONARY ARTERY DISEASE DURING THE EVALUATION OF AN ISCHEMIC STROKE IN A YOUNG PATIENT WITH SYSTEMIC LUPUS ERYTHEMATOSUS: A CASE REPPORT

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ABSTRACT

Systemic lupus erythematosus (SLE) is associated with an increased risk of premature and often silent cardiovascular disease. We report the case of a 38-year-old woman with SLE, without known cardiovascular risk factors, admitted for an ischemic stroke. Cardiac investigations revealed silent coronary artery disease with myocardial involvement. Coronary angiography demonstrated a severe left anterior descending artery stenosis, treated by percutaneous coronary intervention, with angiographic success. This case highlights the atypical presentation of coronary artery disease in SLE and emphasizes the importance of systematic cardiovascular screening to prevent severe complications.

KEYWORDS

Systemic lupus erythematosus; Coronary artery disease; Ischemic stroke; Cardiovascular complications; Silent myocardial infarction

MAIN ARTICLE

INTRODUCTION

Systemic lupus erythematosus (SLE) is a systemic autoimmune disease affecting multiple organs, including the heart and blood vessels, and predisposing patients to thromboembolic events, which represent a major cause of morbidity and mortality.

The association of coronary artery involvement with neurological manifestations, although rare, remains particularly complex in patients with SLE.

We report a case of silent coronary artery disease revealed during the assessment of an ischemic stroke in a young patient with SLE.

CASE REPORT:

This is a 38-year-old female patient with no conventional cardiovascular risk factors. Her medical history includes systemic lupus erythematosus diagnosed in 2021, complicated by nephrotic syndrome with preserved renal function (indication for renal biopsy). She was treated with corticosteroids and hydroxychloroquine, with treatment interruption due to lack of financial resources.

The patient was initially admitted to the neurology department for Broca's aphasia and right-sided hemiparesis, consistent with an ischemic stroke involving both superficial and deep territories of the left middle cerebral artery. She was sub sequently transferred to our cardiology department following the detection of electrical and echocardiographic abnormalities during the etiological workup of her ischemic stroke, despite the absence of cardiac symptoms.

Initial evaluation included an ECG showing Q waves in the anteroseptal leads and negative T waves in the anterosepto-apical, inferolateral, and inferior leads. (Figure 1). Troponin level was elevated at10 ng/mL.

Transthoracic echocardiography revealed akinesia of the apex and apical, septal, and mid antero septal segments, with hypokinesia of the anterior, inferior, and lateral apical segments, as well as the mid anterior segment, associated with hyperkinesia of the other walls. Left ventricular ejection fraction was preserved at 50%.

Cardiac MRI demonstrated myocardial viability in the presumed left anterior descending artery (LAD) territory (4 out of 7 segments). (Figure 3)

Coronary angiography revealed a short, severe stenosis of the proximal-to-mid LAD, successfully treated with angioplasty and placement of a drug-eluting stent, with good angiographic results. (Figure2). Supra-aortic Doppler ultrasound was normal, as were the lipid and diabetic profiles

DISCUSSION

Systemic lupus erythematosus is a chronic multisystem autoimmune disease characterized by autoantibody production and complement activation, leading to diffuse inflammatory lesions. While cutaneous, articular, renal, and hematological manifestations are well known, cardiovascular complications represent a major cause of morbidity and mortality in these patients [1,2].

Patients with systemic lupus erythematosus have a cardiovascular risk up to ten times higher than that of the general population of the same age and sex, even in the absence of traditional risk factors [3]. This excess risk is particularly pronounced in young women, who are usually protected from coronary artery disease by estrogen. The pathophysiology is multifactorial, involving chronic inflammation with endothelial dysfunction and premature atherosclerosis [4], long-term corticosteroid therapy promoting hypertension, dyslipidemia, and insulin resistance [5], increased synthesis of prothrombotic factors leading to arterial and venous thrombosis [6], and immune dysfunction characterized by autoantibodies, pro-inflammatory cytokines, and complement activation. Even during clinical remission, patients exhibit subclinical vascular inflammation, contributing to silent atherosclerotic progression [7].

Cardiac involvement in systemic lupus erythematosus may be silent or symptomatic, most often presenting with chest pain and less frequently with dyspnea. Pericarditis is the most common manifestation, reported in more than 55% of cases in a Moroccan cohort of 80 patients , whereas myocarditis, Libman–Sacks endocarditis, and pulmonary arterial hypertension are rarer. Rhythm and conduction disorders are mainly associated with myocardial involvement . Coronary artery disease remains a significant complication, with a reported prevalence between 6% and 10%, and may be completely asymptomatic, as in our case .

Ischemic stroke in patients with systemic lupus erythematosus may be thromboembolic, particularly in antiphospholipid syndrome or atrial fibrillation, or atherothrombotic due to cerebral macroangiopathy. In some cases, ischemic stroke may be secondary to coronary artery disease, where post-infarction left ventricular dysfunction favors intracardiac thrombus

formation and cerebral embolization. This underscores the importance of systematic cardiovascular screening in patients with systemic lupus erythematosus, especially when neurological events occur without an obvious cause. The association between ischemic stroke and coronary artery disease in systemic lupus erythematosus remains rare, with only 44 simultaneous cases reported up to August 25, 2020, according to a meta-analysis based on 37 case reports or series.

CONCLUSION

This case highlights the complexity and severity of cardiovascular complications in patients with systemic lupus erythematosus, even in young patients without traditional cardiovascular risk factors.

Coronary artery disease may be completely silent and remain undetected until the occurrence of an acute event such as ischemic stroke. This atypical presentation underscores the need for systematic and proactive cardiovascular surveillance in patients with SLE.

A multidisciplinary approach, integrating internal medicine, neurology, and cardiology, is essential to improve prognosis and prevent potentially fatal complications.

FIGURES

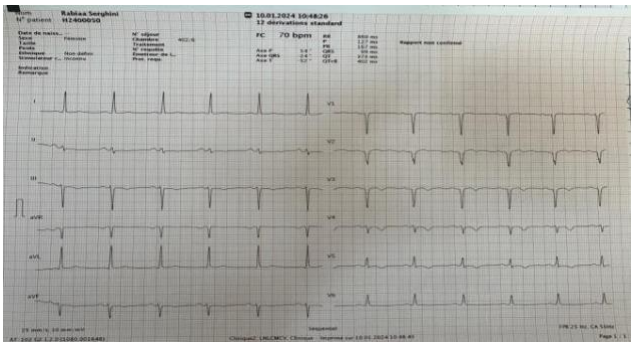

Figure 1: *EKG showing Q waves in the anteroseptal leads, and negative T waves in the anterosepto-apical, inferolateral, and inferior leads:*

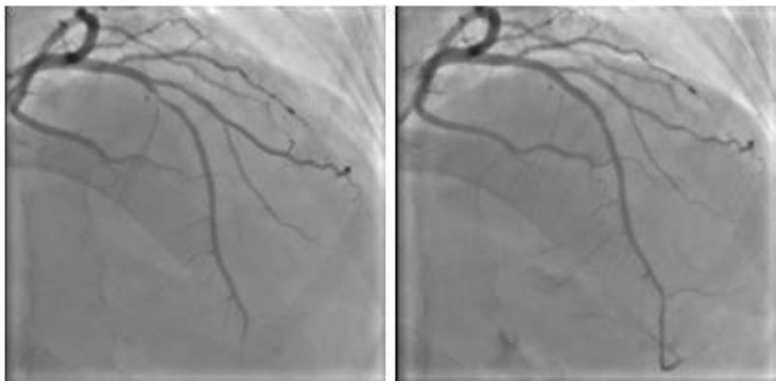

Figure 2: *Images before and after angioplasty with stent placement for a short lesion of the proximal–mid LA*

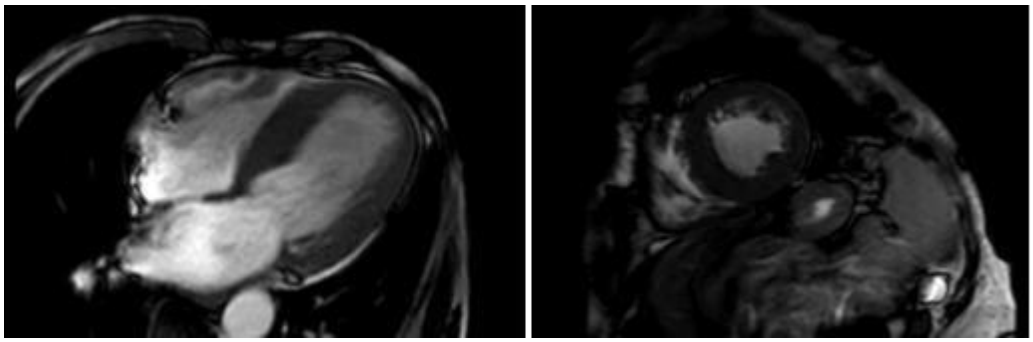

Figure 3: *MRI showing myocardial viability in left anterior descending artery (LAD) territory:*

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REFERENCES

1. Urowitz MB, Gladman DD, Bookman AA, Koehler BE, Gordon DA, Smythe HA. "The bimodal mortality pattern of systemic lupus erythematosus." Am J Med. 1976;60(2):221–225.doi:10.1016/0002-9343(76)90431-9.
https://pubmed.ncbi.nlm.nih.gov/1251849/

2. Manzi S, Meilahn EN, Rairie JE, Conte CG, Medsger TA Jr, Jansen-McWilliams L, et al. "Age-specific incidence rates of myocardial infarction and angina in women with systemic lupus erythematosus." Am J Epidemiol. 1997;145(5):408–415. doi:10.1093/oxfordjournals.aje.a009122.
https://pubmed.ncbi.nlm.nih.gov/9048514/

3. Esdaile JM, Abrahamowicz M, Grodzicky T, Li Y, Panaritis C, Du Berger R, et al. "Traditional Framingham risk factors fail to fully account for accelerated atherosclerosis in systemic lupus erythematosus." Arthritis Rheum. 2001;44(10):2331–2337. doi:10.1002/1529-0131(200110)44:10<2331::AID-ART475>3.0.CO;2-F.
https://pubmed.ncbi.nlm.nih.gov/11665868/

4. Roman MJ, Shanker BA, Davis A, Lockshin MD, Sammaritano L, Simantov R, et al. "Prevalence and correlates of accelerated atherosclerosis in systemic lupus erythematosus." N Engl J Med. 2003;349(25):2399–2406. doi:10.1056/NEJMoa035210.
https://pubmed.ncbi.nlm.nih.gov/14645678/

5. Bruce IN."Not only… but also: factors that contribute to accelerated atherosclerosis and premature coronary heart disease in systemic lupus erythematosus." Rheumatology (Oxford). 2005;44(12):1492–1502. doi:10.1093/rheumatology/kei246.
https://pubmed.ncbi.nlm.nih.gov/16154962/

6. Cervera R, Khamashta MA, Font J, et al."Antiphospholipid syndrome and the heart. Lupus." 2005;14(9):691–697. doi:10.1191/0961203305lu2273oa.
https://pubmed.ncbi.nlm.nih.gov/16280937/

7. Sabio JM, Edmundowicz D, et al.“Subclinical vascular disease in systemic lupus erythematosus: mechanisms and management. Lupus.” 2010;19(12):1415–1430. doi:10.1177/0961203310384011. https://pubmed.ncbi.nlm.nih.gov/20858642/